



## Original article

## Engaging health care workers to prevent catheter-associated urinary tract infection and avert patient harm



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Preventing catheter-associated urinary tract infection (CAUTI) remains a significant challenge for US hospitals. The “On the CUSP: Stop CAUTI” initiative represents the single largest national effort (involving >950 hospitals) to mitigate urinary catheter risk. The program brings together key organizations to assist state hospital associations and hospitals by providing education and coaching support, addressing both the technical aspects of preventing CAUTI and CAUTI-specific socio-adaptive challenges. At the local level, engaging health care workers, from physicians and nurses to other ancillary services, is critical. This includes (1) making the importance of addressing CAUTI stakeholder specific, (2) ensuring support from leaders of essential disciplines, (3) underscoring the importance of the collaborative nature of CAUTI prevention, and (4) identifying champions within the organization to lead and be accountable for the work. Sustainability is ensured by integrating the process into the health care worker's daily routine activities.

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Preventing inappropriate urinary catheter use has gained significant focus over the last decade,<sup>1</sup> with growing appreciation of the urinary catheter as a risk to patient safety. The catheter is associated with both mechanical<sup>2</sup> and infectious complications,<sup>3</sup> including increased multidrug resistance.<sup>4,5</sup> Since October 2008, the Centers for Medicare and Medicaid Services have not reimbursed for hospital-acquired catheter-associated urinary tract infection (CAUTI), considering it to be a reasonably preventable condition.<sup>6</sup> In addition, the US Department of Health and Human Services' National Action Plan to prevent healthcare-associated infections includes a 25% reduction in CAUTI rates nationwide by 2013.<sup>7</sup> Among the efforts to meet this goal is the national implementation of Comprehensive Unit-based Safety Program (CUSP) to reduce CAUTI initiative, also known as the initiative—On the CUSP: Stop CAUTI—which is funded by the Agency for Healthcare Research and Quality (AHRQ) and led by several institutions and societies. Specifically, this AHRQ-funded effort, led by the Health Research & Educational Trust (HRET), an affiliate of the American Hospital Association, in collaboration with the

Michigan Health & Hospital Association (MHA) Keystone Center for Patient Safety & Quality, St John Hospital and Medical Center, Veterans Affairs/University of Michigan Patient Safety Enhancement Program, and Johns Hopkins Medicine Armstrong Institute for Patient Safety and Quality, is designed to reduce CAUTI, improve unit safety culture, and reduce CAUTI risk.<sup>7</sup> In this article, we discuss CAUTI prevention efforts, describe the national collaboration between the different organizations, briefly review the technical and socio-adaptive components of the program, and specifically describe our approach to engaging health care workers (HCWs) as an essential part of CAUTI prevention and averting patient harm. Strategies to ensure sustained improvements are also discussed.

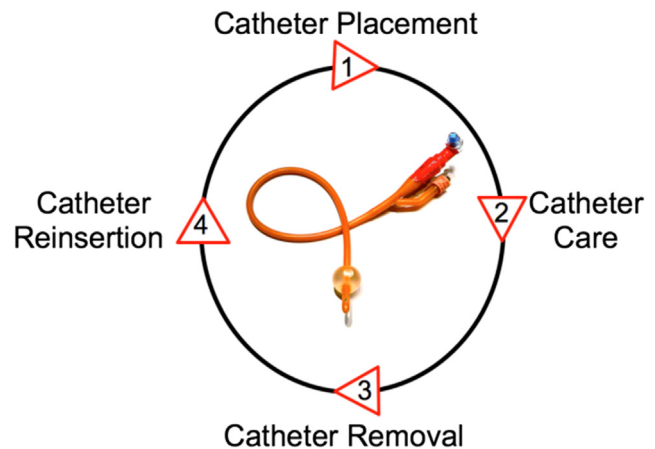
## CAUTI PREVENTION

Much of the effort to prevent CAUTI has been geared toward reducing device use.<sup>1,8</sup> In 2009, the Centers for Disease Control (CDC) Healthcare Infection Control Practices Advisory Committee (HICPAC) issued new guidelines for CAUTI prevention, including consensus-based indications for appropriate use.<sup>9</sup> Although based on expert opinion, the recommended indications are largely viewed as acceptable indications for catheter use, and hospitals have been encouraged to adopt them. The 6 appropriate indications are as follows: (1) acute urinary retention or bladder outlet obstruction, (2) accurate measurements of urinary output in critically ill patients, (3) perioperative use for selected surgical procedures, (4) to assist in healing of open sacral or perineal wounds in incontinent patients, (5) prolonged immobilization requirement, and (6) improved comfort for end-of-life care. In addition, the HICPAC CAUTI guidelines promote proper aseptic insertion and maintenance techniques.<sup>9</sup>

Nonetheless, unnecessary placement and continued use of urinary catheters remains common in hospitalized patients, especially among vulnerable populations, such as older adults.<sup>10-15</sup> The risk exists as soon as the patient reaches the hospital, in the emergency department (ED), on both the intensive care unit (ICU) and the medical surgical floor, or in the operating room (OR). Mitigating the risks associated with catheter use includes addressing both appropriate reasons for use and proper insertion technique and catheter maintenance. The urinary catheter life cycle, described by Meddings and Saint,<sup>16</sup> provides a useful framework for both identifying and addressing this risk (Fig 1). For example, to reduce catheter harm, the first step is to prevent placement of any urinary catheter that would not be of medical benefit to the patient.<sup>17-19</sup> Avoiding unnecessary catheter placement will not only prevent the risk of infection, but it will also prevent trauma<sup>2,20</sup> associated with the catheter and other conditions (eg, impaired mobility).<sup>21</sup> Step 2, aseptic insertion and proper maintenance, reduces the risk of introducing organisms into the bladder, delaying the occurrence of bacteriuria. Removal of the catheter when it is no longer medically needed (step 3) reduces the risk of noninfectious and infectious complications. Catheter-associated bacteriuria is dependent on duration of use,<sup>22,23</sup> making removing unnecessary catheters an attractive area for intervention.<sup>1,7,8,24,25</sup> Step 4 of the lifecycle focuses on preventing reinsertion of indwelling urethral catheters, which may involve the use of alternative strategies, such as bladder scanning and intermittent catheterization, as described in the algorithm provided in Figure 2.

## NATIONAL COLLABORATION BETWEEN VARIOUS STAKEHOLDERS

Drawing on a successful effort at a hospital,<sup>24</sup> the MHA Keystone Center implemented a process to reduce inappropriate catheter use



**Fig 1.** Lifecycle of the urinary catheter, which includes placement, care, removal, and reinsertion. (Reproduced with Permission. Meddings and Saint, Clin Infect Dis 2011;52:1291-93.)

in 163 units from 71 acute care hospitals in the state of Michigan. This program resulted in a 25% relative reduction in catheter use and a 30% improvement in appropriate use,<sup>8</sup> which also corresponded with a 25% reduction in CAUTI rates in the state of Michigan during a period in which the nation saw only a 6% decline.<sup>26</sup> The Michigan work used a bladder bundle that promotes daily evaluation of catheter need, use of tools (eg, bladder ultrasound) to prevent catheterization, and evaluation and feedback on catheter use and appropriateness.<sup>27</sup>

Building on the Michigan approach and with funding support from the AHRQ, 10 organizations, considered to be important stakeholders in reducing catheter harm, collaborated to plan and implement the On the CUSP: Stop CAUTI project in all 50 states. The HRET leads the project, providing oversight, coordinating the work between the different organizations, and serving as a conduit to state hospital associations and other entities working with hospitals. Since the project's inception in August 2011, a national project team with representatives from the MHA, University of Michigan, St John Hospital and Medical Center, and Johns Hopkins Medicine Armstrong Institute for Patient Safety and Quality has been working with the HRET to guide the CAUTI prevention work that is now underway. The roles of the national team members are described in Table 1. In addition to the national team, extended faculty was recruited from the Association for Professionals in Infection Control, Society of Healthcare Epidemiology of America, Society of Hospital Medicine, Emergency Nursing Association, and American College of Emergency Physicians (Table 1). The role of the extended faculty ranges from spreading the educational efforts nationwide, providing insight in their area of expertise, and garnering support for the initiative with their respective members. Finally, representatives from the CDC provide technical assistance and guidance to the national team.

## TECHNICAL AND SOCIO-ADAPTIVE COMPONENTS

The On the CUSP: Stop CAUTI effort is initiated for groups of states at a time (or cohorts), beginning with the engagement of the various state leads who serve as a liaison with the hospitals. Interested hospitals are expected to obtain leadership support and identify specific units for their improvement work. Hospitals are also provided with tools to help them assemble their CAUTI prevention teams and resources to support their efforts. The importance of addressing both the technical and socio-adaptive components of

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